"Contains NO CBI"

(1)

UNION CARBIDE CORPORATION 39 OLD RIDGEBURY ROAD, DANBURY, CT 06817-0001

8EHQ-92-12090

August 27, 1992 8892001032 8

INIT

(A)

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

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Room L-100
Office of Toxic Substances
U.S. Environmental Protection Agency
401 M Street, SW
Washington, DC 20460

92 SEP -1 AM 11: 28

Attn: Section 8(e) Coordinator (CAP Agreement)

Re: CAP Agreement Identification No. 8ECAP-0110

Dear Sir or Madam:

Union Carbide Corporation ("Union Carbide") herewith lists the following report pursuant to the terms of the TSCA §8(e) Compliance Audit Program and Union Carbide's CAP Agreement dated August 14, 1991 (8ECAP-0110). The report describes a single animal inhalation study and human sensory response with vinyl acetate (CASRN 108-05-4).

"Vinyl Acetate: SingleAnimal Inhalation and Human Sensory Response", Chemical Hygiene Fellowship (Carnegie-Mellon University), Special Report 36-72, October 31, 1973.

This information was previously submitted to the Agency in the following manner:

UCC letter of 4/8/86 to TSCA 8(d) Office.

An additional copy of this study is attached.

A complete summary of this report is attached.

Previous TSCA Section 8(e) or "FYI" Submission(s) related to this substance are:

(None)

RECEIVED 2/15/95

36-72

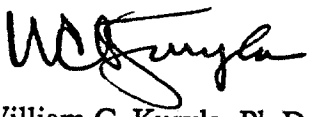
(2)

Previous PMN submissions related to this substance are: (None)

This information is submitted in light of EPA's current guidance. Union Carbide does not necessarily agree that this information reasonably supports the conclusion that the subject chemical presents a substantial risk of injury to health or the environment.

In the attached report the term "CONFIDENTIAL" may appear. This precautionary statement was for internal use at the time of issuance of the report. Confidentiality is hereby waived for purposes of the needs of the Agency in assessing health and safety information. The Agency is advised, however, that the publication rights to the contained information are the property of Union Carbide.

Yours truly,



William C. Kuryla, Ph.D.
Associate Director
Product Safety
(203/794-5230)

WCK/cr
Attachment (3 copies of cover letter, summary, and report)

SUMMARY

Special Report 36-72 October 31, 1973

Confidential

CHEMICAL HYGIENE FELLOWSHIP
Division of Sponsored Research
Carnegie-Mellon University
4400 Fifth Avenue
Pittsburgh, PA 15213

Vinyl Acetate

Single Animal Inhalation and Human Sensory Response

Sponsor: Union Carbide Corporation, Chemicals and Plastics Operations Division

* * * * *

Summary

(1 ppm vinyl acetate = 0.0035211 mg/liter air)
LC50, 4 hour inhalation
Rats - 3680 (2660-5100)ppm
Mice - 1460 (925-2305)ppm
Guinea pigs - 5210 (3500-7740)ppm
Rabbits - 2760 (1800-4200)ppm
Cause of death - lung irritation.

Highest concentration having no irritative effect on dogs in 4 hours - 102 ppm
3280 ppm for 4 hours did not kill one dog
Highest concentration not smelled by humans - 0.6 ppm
compared with USSR report of 1 mg/m^3 = 0.3 ppm odor threshold
Rapid human olfactory fatigue, rapid recovery
Highest concentration not irritating eye, nose or throat - 1.3 ppm for 2 minutes
Highest concentration not irritating every eye, nose or throat - 34 ppm for 2 hours

SUMMARY

Report 36-72

Single 4 Hour Inhalation

Rats: 6 male, 6 female exposed separately; results identical. LC50 3680 (2660-5100) ppm.

PPM Concentration Metered	Corrected	Dead/ Dosed	Days to Death	Ave. Grams Weight Change	Signs of Effect
8000	6560	12/12	In Exposure	-	Gasping 10 min., prostrate 25 min., clonic convulsions 50 min., death 90 min.
4000	3280	4/12	3 in Exposure 1 in 9 Days	+27	Gasping 50 min., clonic convulsions 150 min., death 3 hrs.
2000	1640	0/12	-	+60	Extremities congested 1 hr.

Mice: LC50 1460 (925-2305) ppm.

PPM Concentration Metered	Corrected	Dead/ Dosed	Days to Death	Ave. Grams Weight Change	Signs of Effect
8000	6560	6/6	In Exposure	-	Gasping 5 min., deaths in 15, 15, 15, 20, 20, 65 min.
4000	3280	5/6	In Exposure	+1	Gasping 5 min, clonic convulsions and death 30 min. One survivor eyes opaque, poor coordination.
2000	1640	4/6	In Exposure	-2.5	Gasping 5 min., clonic convulsions and death 15 min. Survivors labored breathing.
1000	820	1/6	8 Days	+3	Labored breathing 2 min.
500	410	0/6	-	+4	Normal.

Guinea Pigs, Male: LC50 5210 (3500-7740) ppm.

PPM Concentration Metered	Corrected	Dead/ Dosed	Days to Death	Ave. Grams Weight Change	Signs of Effect
16000	13120	6/6	In Exposure	-	Gasp, rub nose, 2 min., lacrimated 10 min., prostrate 22 min., deaths 30, 35, 45, 75, 85, 107 min.
8000	6560	4/6	3 in Exposure 1 in 3 Days	-4	Gasping 10 min., clonic convulsions 18 min., deaths 55, 60, 105 min. Survivors weak.
4000	3280	1/6	In Exposure	+33	Labored breathing, poor coordination 55 min., lacrimation 90 min., death 2 hr. Survivors normal.
2000	1640	0/6	-	+57	Lacrimation 30 min., eyes and noses wet at end of exposure.

Gross pathology of victims - Lungs congested, emphysemic, scattered hemorrhages.

Rabbits, male: LC50 2760 (1800-4200) ppm.

PPM Concentration Metered	Corrected	Dead/ dosed	Days to Death	Ave. Grams Weight Change	Signs of Effect
8000	6560	4/4	2 in Exposure 1 in 2 days, 1 in 4 days	-206	Labored breathing, poor coordination 15 min., convulsions 17 min., noses red, lacrimation 55 min., eyes cloudy 70 min., deaths 60 and 100 min., nose bloody 2 hrs.
4000	3280	3/4	4, 7, 13 days	-300	Nose red 30 min., eyes cloudy 90 min. Normal at end of exposure.
2000	1640	0/4	-	+225	Normal.

Gross pathology of victims - Bloody nostrils, froth in trachea, excess pleural fluid, lung hemorrhages.

A16

(b)

Special Report 36-72
6 Pages
Confidential

October 31, 1973
Tel: (412) 327-1020

CHEMICAL HYGIENE FELLOWSHIP
Division of Sponsored Research
Carnegie-Mellon University
4400 Fifth Avenue
Pittsburgh, PA 15213

AFDK tremors in non-monkeys dog

Vinyl Acetate

Single Animal Inhalation and Human Sensory Response

Sponsor: Union Carbide Corporation, Chemicals and Plastics Operations Division

* * * * *

Summary

(1 ppm vinyl acetate = 0.0035211 mg/liter air)
LC50, 4 hour inhalation
Rats - 3680 (2660-5100)ppm
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compared with USSR report of 1 mg/m^3 = 0.3 ppm odor threshold
Rapid human olfactory fatigue, rapid recovery
Highest concentration not irritating eye, nose or throat - 1.3 ppm for 2 minutes
Highest concentration not irritating every eye, nose or throat - 34 ppm for 2 hours

Interpretation

There is no justification for a TLV aimed at preventing eye irritation as low as 0.3 ppm.

Introduction

Early in 1968 the ACGIH published its intention of setting the TLV for vinyl acetate at 0.3 ppm (approximately 1.0 mg/m^3) in 1970. This was intended to prevent eye irritation, reported to be an effect at a very low concentration. An important publication leading the association to that low concentration was Gofmekler, V. A.; Gig. i Sanit., *25* N. 4, 9 (1960), abstracted in Chem. Abst. *54*, 25422d, 1960 and reporting the odor threshold to be 1 mg/m^3, the threshold of light sensitivity to the eye 0.8 mg/m^3 and of reflex changes in electrical activity of the brain 0.2 mg/m^3.

In order to investigate the soundness of the proposed TLV it was decided to make a range-finding study and to study the response of several species of animals to 4-hour inhalation of vapors, and human sensory response to low concentrations. At the same time exposures were to be measured at the Texas City plant and worker response carefully studied. The latter study was published (D. E. Peese and R. E. Joyner. "Vinyl Acetate: A Study of Chronic Human Exposure," Amer. Ind. Hyg. Assoc. J., *30*, 449-457, 1969).

The RF study was reported in 1969 as Special Report 32-99. This document is a belated report on the rest of the work done by the Fellowship. In the meantime pertinent information has been published in England (J. C. Gage. "The Subacute Inhalation Toxicity of 109 Industrial Chemicals." Brit. J. Ind. Med., *27*, 1-18, 1970)

In 1970, partly as a result of private communication of a summary of the data of this report to ACGIH, the TLV for vinyl acetate was published as 10 ppm.

Sample

M. I. Sample No. 31-49, 5 gallons, received 2-27-68.
Vinyl Acetate LHQ
Chemicals and Plastics, South Charleston, W. Va., Order 514-606330
Reference S-894384, File ZAZ.40
99.99% purity, 0.003 ppm hydroquinone

Methods

Vapor was generated by feeding the liquid sample at a constant rate down the inside of the spirally corrugated surface of a minimally heated Pyrex tube, through which metered air was passed. The calculated concentration of this metered vapor-air mixture was corrected from a curve based upon gas chromatographic analysis of calculated concentrations ranging from 0.6 to 16,000 ppm. The curve was a straight line, with a slope equivalent 82.3% of the calculated concentration. The method used for analysis was Union Carbide Chemicals and Plastics Environmental Hygiene Method 38s, Tentative October 17, 1968.

Groups of 6 male and 6 female rats, 6 mice, 6 guinea pigs and 4 rabbits were exposed for 4 hours to enough concentrations in a geometric series with a constant factor of 2 between concentrations to allow calculation of the LC50 and its confidence limits by the moving average table of Weil.

Single beagle dogs were exposed for 4 hour periods to concentrations from 51 to 3280 ppm and signs of response were closely observed.

Groups of 3 to 9 human volunteers were exposed for 2 minutes to 4 hours to various concentrations and symptoms were recorded.

Results

Single 4 Hour Inhalation

Rats: 6 male, 6 female exposed separately; results identical. LC50 3680 (2660-5100) ppm.

PPM Concentration Metered	Corrected	Dead/ Dosed	Days to Death	Ave. Grams Weight Change	Signs of Effect
8000	6560	12/12	In Exposure	-	Gasping 10 min., prostrate 25 min., clonic convulsions 50 min., death 90 min.
4000	3280	4/12	3 in Exposure 1 in 9 Days	+27	Gasping 50 min., clonic convulsions 150 min., death 3 hrs.
2000	1640	0/12	-	+60	Extremities congested 1 hr.

Gross pathology of victims - Lung congestion and hemorrhage, froth in trachea, cornea opaque.

Mice: LC50 1460 (925-2305) ppm.

PPM Concentration Metered	Corrected	Dead/ Dosed	Days to Death	Ave. Grams Weight Change	Signs of Effect
8000	6560	6/6	In Exposure	-	Gasping 5 min., deaths in 15, 15, 15, 20, 20, 65 min.
4000	3280	5/6	In Exposure	+1	Gasping 5 min, clonic convulsions and death 30 min. One survivor eyes opaque, poor coordination.
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1000	820	1/6	8 Days	+3	Labored breathing 2 min.
500	410	0/6	-	+4	Normal.

Gross pathology of victims - Lungs congested, excess pleural fluid.

Guinea Pigs, Male: LC50 5210 (3500-7740) ppm.

PPM Concentration Metered	Corrected	Dead/ Dosed	Days to Death	Ave. Grams Weight Change	Signs of Effect
16000	13120	6/6	In Exposure	-	Gasp, rub nose, 2 min., lacrimated 10 min., prostrate 22 min., deaths 30, 35, 45, 75, 85, 107 min.
8000	6560	4/6	3 in Exposure 1 in 3 Days	-4	Gasping 10 min., clonic convulsions 18 min., deaths 55, 60, 105 min. Survivors weak.
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2000	1640	0/6	-	+57	Lacrimation 30 min., eyes and noses wet at end of exposure.

Gross pathology of victims - Lungs congested, emphysemic, scattered hemorrhages.

Rabbits, male: LC50 2760 (1800-4200) ppm.

PPM Concentration Metered	Corrected	Dead/ dosed	Days to Death	Ave. Grams Weight Change	Signs of Effect
8000	6560	4/4	2 in Exposure 1 in 2 days, 1 in 4 days	-206	Labored breathing, poor coordination 15 min., convulsions 17 min., noses red, lacrimation 55 min., eyes cloudy 70 min., deaths 60 and 100 min., nose bloody 2 hrs.
4000	3280	3/4	4, 7, 13 days	-300	Nose red 30 min., eyes cloudy 90 min. Normal at end of exposure.
2000	1640	0/4	-	+225	Normal.

Gross pathology of victims - Bloody nostrils, froth in trachea, excess pleural fluid, lung hemorrhages.

Dogs: One male beagle per concentration. None died.

PPM Concentration Metered	Corrected	Signs of Effect
4000	3280	Rubbed eyes and nose at once, tremors 2 1/2 hr., froth from nostrils 3 1/2 hr., eyes red.
2000	1640	Blink, sneeze at once, lacrimation 5 min., eye lids inflamed 30 min., nasal froth 4 hrs.
1000	820	Lacrimation 2 min., sclera red 4 hrs.
250	205	Blink 1 min., sclera red 1 hr.
125	102.5	No signs.
62.5	51.25	No signs.

Human Exposures

Concentrations unknown to subjects, presented in random order, symptoms reported privately.

Corrected PPM Concentration	Subjects	Exposure Duration	Symptoms	See Note
0.6	9	2 min.	None.	
1.3	9	2 min.	9 immediate odor, 5 no odor at 2 min.	
4	9	2 min.	9 immediate odor, 3 no odor at 2 min. 1 minimal eye, nose, throat irritation	
8	9	2 min.	9 immediate odor, 1 no odor at 2 min. 2 minimal eye, nose, throat irritation	
20	9	2 min.	9 immediate odor 1 minimal eye, nose, throat irritation	
20	3	4 hrs.	3 complete olfactory fatigue in 3 to 116, ave. 63 min., 1 slight persistent throat irritation	a
34	3	2 hrs.	1 complete, 2 partial olfactory fatigue 1 transient, 1 persistent throat irritation	a
72	4	30 min.	4 strong odor, partial olfactory fatigue 4 slight throat irritation 20 to 60 min. after exposure, eye irritation to 60 min. after exposure	a,b

Notes: a. Ten minutes after exposure subjects returned to chamber and found odor as strong as at start of exposure.

b. Subjects expressed unwillingness to work in this concentration for 8 hours.

Henry F. Smyth, Jr., Ph.D.
Advisory Fellow

Approved:

Charles P. Carpenter, Ph.D.
Administrative Fellow

Acknowledgments:

Animal Inhalation, Human Inhalation	Urbano C. Pozzani, M.A. Senior Fellow (Deceased)
Animal Inhalation, Human Inhalation	Charles H. Haun, B.S. Junior Fellow (Resigned)
Animal Inhalation, Human Inhalation	Edwin R. Kinkead, B.S. Junior Fellow (Resigned)

Date Received: 10-24-73

Typed: *bmn*

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Project Initiator

1 - A. B. Steele

* *

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

William C. Kuryla, Ph.D.
Associate Director, Product Safety
Union Carbide Corporation
39 Old Ridgebury Road
Danbury, Connecticut 06817-0001

OFFICE OF
PREVENTION, PESTICIDES AND
TOXIC SUBSTANCES

APR 18 1995

EPA acknowledges the receipt of information submitted by your organization under Section 8(e) of the Toxic Substances Control Act (TSCA). For your reference, copies of the first page(s) of your submission(s) are enclosed and display the TSCA §8(e) Document Control Number (e.g., 8EHQ-00-0000) assigned by EPA to your submission(s). Please cite the assigned 8(e) number when submitting follow-up or supplemental information and refer to the reverse side of this page for "EPA Information Requests".

All TSCA 8(e) submissions are placed in the public files unless confidentiality is claimed according to the procedures outlined in Part X of EPA's TSCA §8(e) policy statement (43 FR 11110, March 16, 1978). Confidential submissions received pursuant to the TSCA §8(e) Compliance Audit Program (CAP) should already contain information supporting confidentiality claims. This information is required and should be submitted if not done so previously. To substantiate claims, submit responses to the questions in the enclosure "Support Information for Confidentiality Claims". This same enclosure is used to support confidentiality claims for non-CAP submissions.

Please address any further correspondence with the Agency related to this TSCA 8(e) submission to:

Document Processing Center (7407)
Attn: TSCA Section 8(e) Coordinator
Office of Pollution Prevention and Toxics
U.S. Environmental Protection Agency
Washington, D.C. 20460-0001

EPA looks forward to continued cooperation with your organization in its ongoing efforts to evaluate and manage potential risks posed by chemicals to health and the environment.

Sincerely,

Terry R. O'Bryan

Terry R. O'Bryan
Risk Analysis Branch

Enclosure 12090A

Triage of 8(e) Submissions

Date sent to triage: APR 20 1995

NON-CAP (CAP)

Submission number: 12090A

TSCA Inventory: (Y) N D

Study type (circle appropriate):

Group 1 - Dick Clements (1 copy total)

ECO AQUATO

Group 2 - ~~Ernie Falke~~ (1 copy total)

~~ATOX~~ SBTOX SEN ~~w/NEUR~~

Group 3 - Elizabeth Margosches (1 copy each)

STOX CTOX (EPI) RTOX GTOX

STOX/ONCO CTOX/ONCO IMMUNO CYTO NEUR

Other (FATE, EXPO, MET, etc.): _____

Notes:

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entire document: 0 (1) 2 **pages** 1,2 **pages** 1,2,3,4,5,6

Notes:

Contractor reviewer : POR **Date:** 4/3/95

CECATS\TRIAGE TRACKING DBASE ENTRY FORM

CECATS DATA:
Submission # 8EHQ- 0992 -12090 SEQ. A

TYPE: (INT) SUPP FLWP

SUBMITTER NAME: Union Carbide Corporation

SUB. DATE: 08/27/92 OTS DATE: 09/01/92 CSRAD DATE: 02/15/95

INFORMATION REQUESTED: FLWP DATE:
0501 NO INFO REQUESTED
0502 INFO REQUESTED (TECH)
0503 INFO REQUESTED (VOL ACTIONS)
0504 INFO REQUESTED (REPORTING RATIONALE)

DISPOSITION:
(0639) REFER TO CHEMICAL SCREENING
(0678) CAP NOTICE

VOLUNTARY ACTIONS:
(0401) NO ACTION REPORTED
0402 STUDIES PLANNED/UNDERWAY
0403 NOTIFICATION OF WORKERS/OTHERS
0404 LABEL/MSDS CHANGES
0405 PROCESS/HANDLING CHANGES
0406 APP./USE DISCONTINUED
0407 PRODUCTION DISCONTINUED
0408 CONFIDENTIAL

CHEMICAL NAME:

CAS #: 108-05-4

INFORMATION TYPE:		P F C
0201	ONCO (HUMAN)	01 02 04
0202	ONCO (ANIMAL)	01 02 04
0203	CELL TRANS (IN VITRO)	01 02 04
0204	MUTA (IN VITRO)	01 02 04
0205	MUTA (IN VIVO)	01 02 04
0206	REPRO/TERATO (HUMAN)	01 02 04
0207	REPRO/TERATO (ANIMAL)	01 02 04
0208	NEURO (HUMAN)	01 02 04
(0209)	NEURO (ANIMAL)	01 02 04
(0210)	ACUTE TOX. (HUMAN)	01 02 04
0211	CHR. TOX. (HUMAN)	01 02 04
(0212)	ACUTE TOX. (ANIMAL)	01 02 04
0213	SUB ACUTE TOX (ANIMAL)	01 02 04
0214	SUB CHRONIC TOX (ANIMAL)	01 02 04
0215	CHRONIC TOX (ANIMAL)	01 02 04

INFORMATION TYPE:		P F C
0216	EPI/CLIN	01 02 04
0217	HUMAN EXPOS (PROD CONTAM)	01 02 04
0218	HUMAN EXPOS (ACCIDENTAL)	01 02 04
0219	HUMAN EXPOS (MONITORING)	01 02 04
0220	ECO/AQUA TOX	01 02 04
0221	ENV. OCCC/REL/FATE	01 02 04
0222	EMER INCI OF ENV CONTAM	01 02 04
0223	RESPONSE REQEST DELAY	01 02 04
0224	PROD/COMP/CHEM ID	01 02 04
0225	REPORTING RATIONALE	01 02 04
0226	CONFIDENTIAL	01 02 04
[illegible]	ALLERG (HUMAN)	01 02 04
0228	ALLERG (ANIMAL)	01 02 04
0239	METAB/PHARMACO (ANIMAL)	01 02 04
0240	METAB/PHARMACO (HUMAN)	01 02 04

INFORMATION TYPE:		P F C
0241	IMMUNO (ANIMAL)	01 02 04
0242	IMMUNO (HUMAN)	01 02 04
(0243)	CHEM/PHYS PROP	01 02 04
0244	CLASTO (IN VITRO)	01 02 04
0245	CLASTO (ANIMAL)	01 02 04
0246	CLASTO (HUMAN)	01 02 04
0247	DNA DAM/REPAIR	01 02 04
0248	PROD/USE/PROC	01 02 04
0251	MSDS	01 02 04
0299	OTHER	01 02 04

Atox/neur

TRIAGE DATA:

NON-CBI INVENTORY: (YES) NO [illegible]

ONGOING REVIEW: YES (DROP/REFER) NO (CONTINUE) [illegible]

SPECIES: Dog, RAT, mus, Hmn, GP, RBT

TOXICOLOGICAL CONCERN: LOW (MED) HIGH

USE:

PRODUCTION:

CAS SR

[illegible]

Tox Concern

ID		
12090A	ATOX	L(ATOX/EPI)
	NEUR	M(ATOX)
	EPI	

COMMENT

ATOX: ACUTE INHALATION TOXICITY IN RATS IS OF MEDIUM CONCERN BASED ON AN LC50 OF 3680 PPM. DOSAGES (4-HOURS, MEASURED, 6/SEX/GROUP) AND MORTALITY DATA (INCIDENCE BY SEX NOT AVAILABLE) ARE AS FOLLOWS: 6560 PPM (12/12); 3280 PPM (4/12); AND 1640 PPM (0/12). AT 3280 PPM AND ABOVE, CLINICAL SIGNS INCLUDED GASPING, PROSTRATION, AND CLONIC CONVULSIONS. IN ANIMALS THAT DIED, GROSS PATHOLOGICAL SIGNS INCLUDED FROTH IN TRACHEA, OPAQUE CORNEA, AND LUNG CONGESTION AND
HEMORRHAGE.

ACUTE INHALATION TOXICITY IN MICE (SEX NOT INDICATED) IS OF MEDIUM CONCERN BASED ON AN LC50 OF 1460 PPM. DOSAGES (4-HOURS, MEASURED) AND MORTALITY DATA ARE AS FOLLOWS: 6250 PPM (6/6); 3280 PPM (5/6); 1640 PPM (4/6); 820 PPM (1/6); AND 410 PPM (0/6). AT 1640 PPM AND ABOVE, CLINICAL SIGNS INCLUDED LABORED BREATHING, GASPING, AND CLONIC CONVULSIONS. IN ANIMALS THAT DIED, GROSS PATHOLOGICAL SIGNS INCLUDED CONGESTED LUNGS AND EXCESS PLEURAL FLUID.

ACUTE INHALATION TOXICITY IN MALE GUINEA PIGS IS OF LOW CONCERN BASED ON AN LC50 OF 5210 PPM. DOSAGES (4-HOURS, MEASURED) AND MORTALITY DATA ARE AS FOLLOWS: 13,120 PPM (6/6); 6560 PPM (4/6); 3280 PPM (1/6); AND 1640 PPM (0/6). CLINICAL SIGNS INCLUDED LACRIMATION, PROSTRATION, LABORED BREATHING, GASPING, INCOORDINATION, AND CLONIC CONVULSIONS. IN ANIMALS THAT DIED, GROSS PATHOLOGICAL SIGNS INCLUDED CONGESTED LUNGS, EMPHYSEMIC WITH SCATTERED HEMORRHAGES.

ACUTE INHALATION TOXICITY IN MALE RABBITS IS OF MEDIUM CONCERN BASED ON AN LC50 OF 2760 PPM. DOSAGES (4-HOURS, MEASURED) AND MORTALITY DATA ARE AS FOLLOWS: 6560 PPM (4/4); 3280 PPM (3/4); AND 1640 PPM (0/4). CLINICAL SIGNS INCLUDED LABORED BREATHING, GASPING, INCOORDINATION, AND CLONIC CONVULSIONS. IN ANIMALS THAT DIED, GROSS PATHOLOGICAL SIGNS INCLUDED BLOODY NOSTRILS, FROTH IN TRACHEA, EXCESS PLEURAL FLUID, AND LUNG HEMORRHAGES.

ACUTE INHALATION TOXICITY IN MALE BEAGLE DOGS IS OF LOW CONCERN. ONE DOG/GROUP WERE EXPOSED TO 3280 PPM, 1640 PPM, 820 PPM, 205 PPM, 102.5 PPM, AND 51.25 PPM FOR 4 HOURS. NO MORTALITIES OCCURRED. CLINICAL SIGNS INCLUDED NOSE AND EYE RUBBING, TREMORS, FROTH FROM NOSTRILS, RED EYES, BLINKING, INFLAMED EYE LIDS, LACRIMATION, AND RED SCLERA. NO CLINICAL SIGNS OCCURRED AT 102.5 PPM AND BELOW.

ACUTE INHALATION TOXICITY IN HUMANS IS OF LOW CONCERN. CONCENTRATIONS (MEASURED), EXPOSURE, AND GROUP SIZE DATA ARE AS FOLLOWS: 0.6 PPM (2 MIN., 9 SUBJECTS); 1.3 PPM (2 MIN., 9 SUBJECTS); 4 PPM (2 MIN., 9 SUBJECTS.); 8 PPM (2 MIN, 9 SUBJECTS.); 20 PPM (2 MIN., 9 SUBJECTS.); 20 PPM (4 HRS., 3 SUBJECTS.); 34 PPM (2 HRS., 3 SUBJECTS.); AND 72 PPM (30 MIN., 4 SUBJECTS.). CLINICAL SIGNS INCLUDED MINIMAL TO SLIGHT PERSISTENT EYE, NOSE, AND THROAT IRRITATION. PARTIAL TO COMPLETE OLFACTORY FATIGUE WAS OBSERVED IN EXPOSURES GREATER THAN 2 MINUTES. IN THE 72 PPM EXPOSURE GROUP, SLIGHT THROAT IRRITATION PERSISTED 20 TO 60 MINUTES AFTER EXPOSURE AND EYE IRRITATION TO 60 MINUTES AFTER EXPOSURE.

EPI: THE CHEMICAL WAS TESTED IN 1973 FOR OLFACTORY FATIGUE IN HUMANS IN TESTS DESIGNED TO GENERATE DATA SUITABLE FOR EVALUATING AN ODOR THRESHOLD. THE CHEMICAL HAS BEEN EXTENSIVELY STUDIED AND IS NOW SUBJECT TO A WORKPLACE STANDARD.